

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 09/964,303
Applicant : Lindemuth et al.
Filed : 09/26/2001
Title : HEAT PIPE SYSTEM FOR COOLING FLYWHEEL
ENERGY STORAGE SYSTEMS
TC/A.U. : 3743
Examiner : Patel, Nahir B.
Docket No. : H1799-00075

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Group 3700

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

AFFIDAVIT OF JAMES E. LINDEMUTH UNDER 37 C.F.R. §1.131

I, James E. Lindemuth, a co-inventor named in the above-identified patent application ("the '303 application") state as follows:

1. All of the events outlined below occurred in the United States of America.
2. Prior to September 17, 2001, I and my co-inventors invented a cooling system including a first heat pipe having an evaporator and a condenser. The first heat pipe being mounted with the evaporator inside a canister and the condenser being mounted outside the canister. A second heat pipe is provided that has an evaporator thermally coupled to the condenser of the first heat pipe. The second heat pipe also includes a condenser. Means are provided for dissipating heat from the condenser of the second heat pipe.
3. Prior to September 17, 2001, I and my co-inventors invented a system for cooling a canister, comprising a first heat pipe having an evaporator and a condenser. The first heat pipe being mounted with the evaporator inside the canister and the condenser being mounted outside the canister. A second heat pipe is provided having

an evaporator that is thermally coupled to the condenser of the first heat pipe. The second heat pipe also has a condenser. A third heat pipe is provided having an evaporator thermally coupled to the condenser of the second heat pipe. The third heat pipe also has a condenser. Means for dissipating heat from the condenser of the third heat pipe are also provided.

4. Prior to September 17, 2001, I and my co-inventors invented an energy storage system cooled by heat pipes comprising a canister and an energy storage flywheel having a motor housing mounted inside the canister. A first heat pipe is provided having an evaporator and a condenser. The evaporator of the first heat pipe is mounted to the motor housing and the condenser of the first heat pipe is mounted outside the canister. A second heat pipe is provided having an evaporator conductively coupled to the condenser of the first heat pipe. The second heat pipe also has a condenser. A third heat pipe is provided having an evaporator conductively coupled to the condenser of the second heat pipe. The third heat pipe also has a condenser interfacing to a heat dissipating means.

5. Prior to September 17, 2001, I and my co-inventors were employed by Thermacore International, Inc., 780 Eden Road, Lancaster, PA 17601.

6. Prior to September 17, 2001, I and my co-inventors conceived of our invention for a heat pipe cooled system, heat pipe cooled canister, and heat pipe cooled energy storage system, as is defined by the claims in the above-identified patent application, and memorialized our conception in at least one manufacturing drawing, completed by me on or about April 17, 2001, which drawing is attached to this Affidavit as Exhibit A.

9. I and my co-inventors diligently informed our employer, Thermacore International, Inc., of our invention.

10. Our employer, Thermacore International, Inc., engaged the services of the law firm of Duane Morris LLP, to conduct a prior art search and to draft an application for patent directed to our invention.

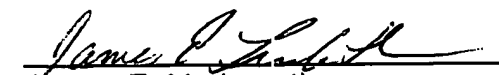
11. Between April 17, 2001 and September 26, 2001, Samuel W. Apicelli (Reg. No. 36427) and Steven E. Koffs (Reg. No. 37163) who are patent attorneys with the law firm of Duane Morris LLP, diligently conducted a prior art search, prepared a draft application for patent directed to our invention, and conferred with me and my co-inventors about the content of that patent application and the scope of the claims presented therein.

12. On September 26, 2001, an application directed to our invention was completed and filed with the U.S. Patent Office, and accorded application serial number 09/964,303, which application constitutes a constructive reduction to practice of our invention.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Title 18, United States Code, Section 1001, and that such willful false statements may jeopardize the validity of the above-identified application or any patent issuing thereon.

Date: 11/10/03

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James E. Lindemuth